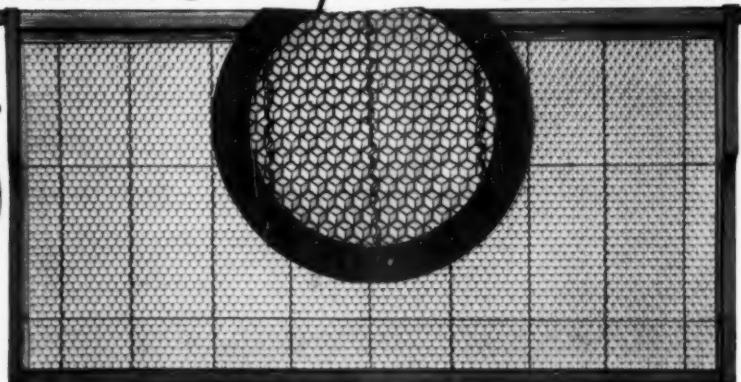


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1956

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THE
AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

Vol. 96, No. 2 February, 1956
Editor—G. H. Cale
Associate Editors—M. G. Dadant,
Roy A. Grout
Managing Editor—Adelaide Larson

Published monthly at Hamilton, Illinois. Entered as second-class matter at the Post Office, Hamilton, Ill. In the United States, Canada and Mexico, \$2.00 a year; two years \$3.50; three years \$5.00. Foreign \$2.50 a year; two years \$4.50; three years \$6.50. Subscription stopped at expiration date printed on wrapper. Available on micro-film at moderate prices by writing to University Microfilms, Ann Arbor, Michigan.

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First Attempt To Produce Hybrid Cottonseed*



These two pictures furnished by J. F. Silbaugh of the Agricultural Research publication of the Agricultural Research Service, U.S.D.A. Left, beehives alongside blossoming Arizona cotton are inspected by commercial beekeepers who are cooperating with the entomologists in studying



the importance of honeybees as pollinators of cotton. Right, cages of plastic screen, 12 by 24 feet and 8 feet tall, help the scientists get accurate results in the Arizona tests. Bees are maintained in some cages (see foreground) and excluded from others.

This is the first time anyone has ever tried to produce hybrid cottonseed. As you know, cotton is not readily adapted to the production of hybrid seed. It has perfect flowers—that is both sexes are in the same flower—and it is tricky to keep the flowers from pollinating themselves, unless we can find a male-sterile cotton. Steps are underway to look for such a cotton, but if I am any judge it will be 12, 15, or possibly 20 years before that method can be perfected.

The idea of utilizing honey bees to produce hybrid cottonseed was given me about 1951 by one of the Sacaton station agronomists, Mr. George C. Knierim. He wanted to know why we could not plant alternate rows of cotton, then introduce honey bees and get enough crossing to give us perhaps 50 percent hybrids. The idea sounded good. I had attended several meetings of the Cotton Improvement Group where research workers had reported on natural crossing by insect pollinators—bumble bees, bees, etc. They had worked out some basic information and formulas, but at that time it did not seem that there was any practical scheme to produce hy-

brid cotton. Hand pollination is much too expensive.

However, it seemed that before we could try Knierim's method it would be necessary to determine what varieties combine well, and also desirable to work out some ancillary information. Groping in the dark, we tried out two crosses, one between Pima 32 and Pima S-1, both high-quality long-staple cottons. The other cross was between two unlike varieties of short-staple cotton, Acala 44 and Acala-Hopi-Acala, a variety which has extremely good spinning quality. The pure (100 percent) Pima 32 x S-1 hybrid gave a 25½ percent increase in yield over the regular S-1, the higher yielding parent. But we figured that if we used honey bees for pollination, we could never get 100 percent crossing since some of the seed would be self-fertilized, and that 50 percent hybridization would be the highest we could hope for. With this in mind, we mixed the pure S-1 seed and the pure hybrid seed equally. The yield expected from this 50-50 mixture would be only half that for the pure hybrid. However, the yield test showed that instead of only 12.75 percent increase, or half as much as the pure hybrid, the 50-50 mixture actually gave an increase of 18.5 percent over the regular S-1 check. The only explanation for the greater-

than-expected increase is that the hybrid seed probably germinated more quickly and better than regular S-1 and the higher-yielding hybrid plants, being a little more vigorous, probably crowded out the regular S-1 plants.

Laboratory tests were made on samples of the parents, the pure hybrid, the 50-50 hybrid mixture, and certain useful information was obtained. We found that the large bolls of the S-1 parent were dominant in the hybrid, so nothing was sacrificed in respect to boll size, and we found that the fiber length of the hybrid was longer than that of regular S-1, in fact as long as the Pima 32 parent. Spinning tests showed that yarn strength was intermediate between the parents. Lint percentage also was intermediate, and this was not so good since lint percentage is an important cost of production factor.

The short-staple cross yielded a good deal of corroborative information that was very useful. However, there was great disparity in the yielding ability of the two parents, the Acala-Hopi-Acala being a very low yielder at Sacaton. The pure hybrid in this cross did not surpass the yield of Acala 44, the higher yielding parent, and nothing further was done with this combination.

These experiments were made in 1953. When the data were examined

* From a stenographic transcript made by Mary Benson of an extemporaneous talk by R. H. Peebles, research agronomist, Field Crops Research, A.R.S., U.S. Field Station, Sacaton, Ariz., at the annual meeting of the Arizona Beekeepers Ass'n, Phoenix, Dec. 17, 1955.

they showed promise, and we talked with Mr. S. E. McGregor and Mr. Frank Todd about the possibility of a field experiment where Pima 32 and Pima S-1 would be grown in alternate rows, if they would supply the bees and agree to handle them.

The same year it occurred to us that we needed to answer one question in particular: If the proposed method proved successful, would it be necessary to produce hybrid seed fresh each year or could it be used the second year? We carried over seed from all lots of the 1953 hybrid vigor experiment and found that the yield of the 50-50 mixture, the lot in which our interest centered, dropped from an advantage of 18.5 percent the first year to only 3.1 percent the second year. It seemed obvious, therefore, that at least this particular hybrid cottonseed could not be used more than one season.

In the Waddell alternate-row trial, Mr. Leslie Doan, then field manager for the J. G. Boswell Co., planted the cotton and carried out his part in every respect. Messrs. McGregor and Todd, the bee research specialists, rented bees from Mr. Clarence Benson. However, when Mr. Benson found there were not enough bees for the job, he put in five times as many at no additional charge. There were some costs connected with saving, ginning, and sacking the seed. These costs were defrayed by Mr. Wilbur Wuerz, manager of the Arizona Cotton Planting Seed Distributors. This past season the University of Arizona entered the cooperation by carrying out three yield tests with the various lots of seed on three experiment stations.

We had a suspicion, merely from observations, that Pima S-1 cotton is inclined to be a little self-sterile, particularly in the early part of the flowering season. Mr. McGregor and Mr. Todd ran some cage experiments and observed the same thing. In 1954 we carried out an experiment at Sacaton with four varieties of cotton: Pima S-1, Pima 32, and two Upland cottons, Acala 44 and Red Acala. One set of plots was open to insect pollination. In another set of plots the girls hand-pollinated every flower every day, and in another set they tipped every bud with cellulose acetate so the flower could not open and therefore had to be self-fertilized. The Pima S-1 showed a tremendous reduction in yield in the first picking, producing only 58.7 percent as much as the hand-pollinated plots. However apparently the self-sterility disappeared in the latter part of the season for the final yield was 82.0

percent as much in the self-pollinated S-1 as in that which had been hand-pollinated. The other varieties failed to respond in any way to self-pollination.

Since very little difference between hand-pollination and insect-pollination occurred in the 1954 experiment, when we repeated the experiment in 1955 we did not bother to hand-pollinate the flowers, and we used only two varieties, Pima S-1 and Acala 44. In Acala 44, selfing did not make any discernible difference, but in S-1 the yield of the first picking where flowers were selfed was only 70.8 percent as much as the insect-pollinated cotton. But in the second picking the self-pollinated plants yielded 41.3 percent more than the insect-pollinated plots, and at the end of the season averaged 93.4 percent as much. Judging from these experiments, it looks as though we should save the seed only from the first picking, if we go ahead producing hybrid cottonseed with bees.

In the Waddell experiment of 1954, the cotton was not picked until 75 percent of the crop was mature, so we did not get the early crop by itself. It is quite possible that the hybrid lots would have contained a higher percentage of hybrid plants if we had been able to take the planting seed when only 40 or 50 percent of the bolls had opened, instead of 75.

This year we planted seven yield tests on seven experiment stations, cooperatively with the University of Arizona, U. S. Cotton Field Station at State College, N. M., and the Texas Agricultural Sub-Station at Ysleta, Texas. The soil was so irregular at State College that the test had to be discarded. At Mesa, Arizona, the test was not considered dependable because of poor seedling stands. For unknown reasons, the results at the new Cotton Research Center, near Tempe, were negative. At Yuma, the first picking weights indicate that the S-1 Hybrid 1 (seed produced in alternate rows the previous season at Waddell) gave 12.2 percent more seed cotton than regular S-1; at Cotton Research Center Hybrid 1 gave an insignificant increase of 1.5 percent; at Mesa, Hybrid 1 yielded 5.9 percent more; at Safford the difference jumped to 24.0 percent in respect to seed cotton and 23.2 percent in amount of lint; at Ysleta, Texas, the Hybrid 1 gave an increase of 6.6 percent, and at Sacaton Hybrid 1 yielded 22.8 percent more seed cotton and 18.0 percent more lint than the regular S-1. In the 1955 tests we did not find much difference in earliness.

The most important thing that must be considered is the cost and returns of growing hybrid seed. The only test for which such figures are available at this time is the one conducted at Sacaton, Ariz. Regular S-1 yielded 561 pounds of lint per acre. At 52.50 cents per pound, on the basis of No. 3, 1-3/8" staple, this amount of lint has a value of \$294.52. Planting seed, at 10 cents per pound and 20 pounds per acre, cost \$2.00. Growing cost is figured for regular S-1 and all lots as amounting to \$100.00 per acre. The cost of hand-picking the 1576 pounds of seed cotton required to produce 561 pounds of lint, at 5 cents per pound, amounts to \$78.80. Total cost of production, \$180.80. This gives a net return of \$113.72 per acre for regular S-1 cotton.

In the same test, Hybrid 1 produced 662 pounds of lint per acre with a value of \$347.55. However, hybrid seed would be much more expensive than ordinary planting seed, and we have estimated it in this case at \$800.00 per ton, or 40 cents per pound. Cost of planting seed at this rate is \$8.00 per acre. Again \$100.00 for growing costs. Hybrid 1 produced more seed cotton, which cost more to pick. The cost of picking the 1936 pounds required to produce 662 pounds of lint is \$96.80. Total cost of production \$204.80. This leaves a net return of \$142.75, which is \$29.03 more than that realized from the regular S-1. If the cotton had been machine-picked at a cost of 3 1/2 cents per pound, the Hybrid 1 would have returned \$34.43 more than S-1.

There is a loss in lint percentage that adds to the cost of harvesting the S-1 hybrid, but we found that the staple length of the pure (100%) hybrid is as great as Pima 32, the longer parent. Although the samples from the various 1955 yield tests have not been tested in the laboratory at this date, it seems very likely that accurate measurements will show that the S-1 hybrid has a longer staple than regular S-1. In computing the foregoing cost estimates a value of 52.50 cents per pound of lint was allowed, but the same grade would bring 3 cents more per pound if the staple were increased to 1-7/16 inches, or an additional 1 1/2 cents per pound if the average length were increased 1/32 inch.

I have been asked if I were ready to recommend immediate production of hybrid S-1 seed. I am certainly unwilling to say so. My job is to dream up some of these ideas, work them out in the best possible way, get

(See Page 75)

Increase With Shallow Supers or Eighteen Out Of Three

by M. H. Stricker

For a long time now in my bee-keeping I have used only standard depth, ten-frame equipment; in fact, for so long that I have become sort of "sot" in my ways. So "sot," as a matter of fact, that it took some imagination to devise a way of using 21 shallow supers that I obtained with an outfit I bought. But I found that these shallows were probably as valuable as any other part of the purchase because of the potential increase they offered me.

After purchasing the outfit, I arranged to put three of my strongest colonies into straight shallow equipment, eliminating their standard depth equipment in the fall. They were allowed to winter in 4 shallow bodies each, and in January I began to feed "Fuller candy" and pollen supplement to stimulate brood rearing. By March 1, I supered with the extra shallows so that each colony was seven

shallows high. Feeding of sugar syrup and additional pollen supplement then began in earnest.

No excluders were used and the queens were allowed to run. By April 10, brood was in abundance in every body. The colonies were inspected for disease and since there was literally a barrelful of bees in each one, it was impossible to locate the queens. But this was of small import, since it had been planned to divide each colony without spending time locating Her Highness.

In late afternoon each shallow was set on a bottom board, covered with a metal cover, and moved to a new yard far enough away to prohibit drifting. Three shallows were left on their original stands and treated exactly the same as those moved to the new yard. In two days this new yard was visited. Any colony showing queen cells was given

a new queen that had been raised for just this purpose. At this time about two pounds of dry sugar was placed on every escape board to provide food in case of dearth.

The next visit was two weeks later when queen acceptance was checked (100%, I am happy to report). Then standard bodies of combs were allowed to shift for themselves until June.

In June some supers were added, but though the colonies were strong, the flow did not seem to materialize as I had hoped. They did provide enough honey for their own use until the fall flow when they all made enough to winter on.

With the advent of spring, the shallow supers can be moved from each colony, allowing them to work in standard depth equipment, and the shallow bodies can again be used to make new colonies the following year.



By March 1st each colony was seven shallows high.



Partial view of yard of shallow brood nests after moving.



Dry sugar was supplied on every escape board in case of dearth.



Supers of standard combs were added after the queens were accepted.

Honey Helps in Heavy Workouts

Such European distance runners as Hungarians *Sandor Iharos* and *Laszlo Tabori* have been amazing the world with their record smashing races and their daily training schedules. The Hungarians are rarely off the track and make a practice of training twice per day for several hours at a time.

Their schedule is to work for two hours from 10 until 12 noon, cool off with easy running and walking, have lunch, rest for an hour and get back to work for another two to three hours of hard running. What really amazes many of their opponents is to see the Hungarians out on the track on the morning of a race. They often will run for an hour before lunch even when their race that afternoon is to be a tough one.

Recover With Honey

According to the Hungarians it is a matter of working up to such a work level gradually and of eating good food in order to establish recovery. Honey, especially at breakfast and lunch, is apparently their favorite energy food.

Few athletes on this side of the Atlantic can take the time to work out twice per day, except during vacation time. But they can take a tip and pay more attention to their diets, especially the use of honey as a recovery food. It must be remembered that the harder the athlete works the more important it is for him to look after his energy fuel supply—and honey is an ideal source.

(From Sports College News, Toronto, December 1955)

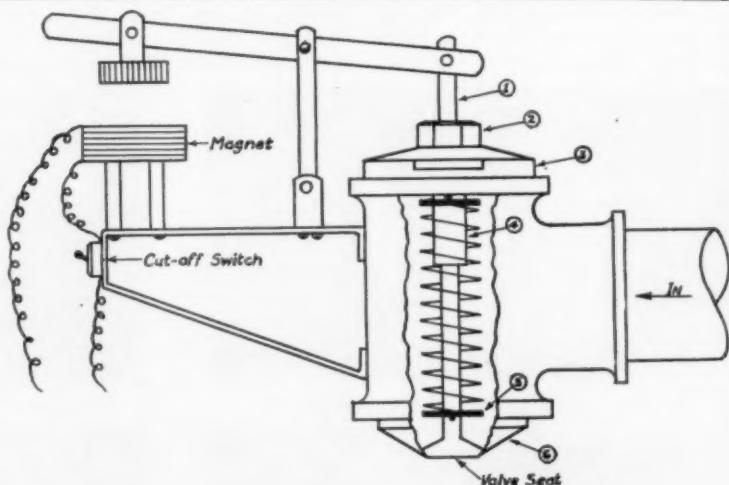
Winter Flights

Winter did not officially begin until December 21 and the months that lie ahead comprise the real winter. They can produce weather that will support the prophecy seen so often the past fall that this winter will be below normal in temperature and so bees may yet be faced with protracted periods without flight.

However, here in the midwest, the bees did not really become confined until about Thanksgiving. It was abnormally cold from then to December 7 when the bees had a flight; and another on Dec. 22; and several during Christmas week. Again on January 5. Since it is seldom here that the bees do not have at least two additional flights before spring, chances are they will be in excellent condition with little loss. As long as the bees of the winter cluster can move to stores and the stores are there to move to, cold won't injure the colony very much.

Honey Valve

Ralph Barnes and W. T. Brand, who built the Brand cappings melter, designed the Honey Valve together in 1936, and Mr. Barnes has used it in all his operations ever since. Quite a few beekeepers have made copies of this valve. Dr. C. L. Farrar made a few improvements by enclosing the spring and upper part of the valve stem in a telescoping metal cover which kept all of the honey away from the spring and valve-stem guide, and eliminated the necessity of the packing gland. The valve can be made of brass or stainless steel. The spring is chrome plated and strong enough to close the valve firmly but should not be too stiff for ease of operation. It can be built in any good machine shop. Because of the satisfaction and wide interest in this valve, Mr. Barnes was kind enough to submit this information to The American Bee Journal.



Honey valve showing complete assembly with actuating lever and mounting for a 24-volt magnet which can be used if wanted. This is connected to the scales and a micro-switch is used to make the valve semi-automatic. The body of the valve is cut away to show the internal structure. 1. Valve stem. 2. Packing retainer nut. 3. Top section of valve. 4. Valve guide. 5. Spring rest. 6. Bottom section of valve and valve seat.

OUR COVER PICTURE

MISS DARLENE BECKER, Pennsylvania Honey Queen

The cover picture, from which this small one was taken, was photographed by Steve Ostafy of Annville, Pa. and secured for us by H. K. Beard President of the State Association. Bill Clarke of State University sent the story. Pretty, petite, Darlene Becker, is the state's second Queen. The high point of her reign came when she attended the Farm Show in Harrisburg where she presided over the honey booth of the State Association and represented the industry in the rural pageant before 50,000 people. Darlene, a junior in Eastern Lebanon County High School, enrolled in the commercial course, is the daughter of Mr. and Mrs. Lester Becker of Sheridan. Darlene has kept bees as a 4-H Club member for three years, in addition to carrying a home economics project. She is also Secretary-Treasurer of the Lebanon County Beekeepers' Association. She has won many prizes with her honey at local fairs and she took time from her job to attend the Beekeeping Short Course at the Pennsylvania State University this past August. Since being made Queen, Darlene has been called upon to speak to such groups as Cub Scouts and school classes about bees. She takes with her an observation hive, as well as a complete miniature hive.



Magic with Packages

Myron Frisque



Merrill Frisque



How Myron Frisque . . .

of Green Bay, Wisconsin, has developed an unusual plan of beekeeping entirely with package bees. With the help of his brother, Merrill, and his own family, he gets unusual results in good crops in a short season, above the average of year around management.



TOP LEFT—View of standard brood comb just as they are stored back in the buildings in August. All ten frames are half extracted in this manner, leaving the center open so the queen can get started in the shortest possible time. There is plenty of pollen and honey to carry them until they can get it in the field. TOP CENTER AND LEFT—View of one yard shortly after packages have been installed in April. Single standard bodies. TOP RIGHT—View of a yard in late May or early June, depending on the season, showing hives with jumbo body

added. Note jumbo is on the bottom standard that received package on top. BOTTOM LEFT—View of yard in late July, colonies very strong, time to take off some supers. Note the gray standard brood body. It is one extracting super above the jumbo which is on the bottom. The queen is confined to the jumbo, and at this point all brood is out of the standard and they have been filled with honey. BOTTOM RIGHT—a Dadant outyard. I like the Dadant hive with our system perhaps better than the standard. Note gray shallows for starting packages.

Magic With Packages

by Myron R. Frisque
(An interview with G. H. Cale)

I started to keep bees in 1930, when I was 23 years old, with 15 colonies in my back yard. I bought these during the depression days, after I had read about bees and talked with George Mueller, an old time beeman. I was then in a contracting business, painting and decorating.

These first 15 colonies were kept in double walled hives and the queens had the run of two standard brood chambers. They were wintered in double bodies so they came through the winter in good shape. I tried all kinds of wintering plans, some of them good and some bad, but gradually as the years went by we de-

veloped this plan of beekeeping with package renewal every year.

I opened up a couple of outyards in 1935 and finally in 1937 decided to go into commercial beekeeping. As I have said I was then wintering most of my bees supplemented with packages for the replacement of the poor colonies of the fall before. During the war I built up to about a 600 colony outfit with 9 outyards but I was gradually getting away from wintering. All of my experiments were leading to the use of packages instead of wintering over colonies. With good queens and good stock I felt I could work out a more uniform

system of beekeeping with less work. Now, in all package operation, we run five to six outyards with about 400 colonies. I believe we are better off running less colonies more efficiently than a thousand colonies haphazardly.

My folks have no beekeeping background. My father, Eugene Frisque, a native of Belgium, had been a tailor most of his life. He is now retired and helps me with my bees along with other members of my family, particularly my brother Merrill, four years my junior, who works with me on a year around basis. He is a natural born mechanic and so, in addition



TOP LEFT—Myron Frisque's home (with honeyhouse in rear). TOP RIGHT—the honey house. BOTTOM LEFT—the hydraulic lift on our truck. We load three stacks of four supers each on dollies for each lift; thirteen stacks to a full load; steel floor in truck makes unloading onto a platform in honeyhouse a snap. BOTTOM CENTER—one of the buildings in our yards. We have five, one in each yard; concrete floor, sheet iron sides. Picture taken in October, closed up, ready for winter, with covers and bottomboards stacked up out in front. Inside are 75 standard brood bodies, 75 jumbos and the rest supers. All brood bodies

are near the door, where we can get at them for packages in early April. BOTTOM RIGHT—a shot of our 1955 wax crop which we just finished melting up, using a Brand melter. We can run out from 400 to 500 pounds of wax in a 14 hour day. We prefer to melt up all our wax after our extracting season is over, as it frees all our time in July and August for extracting and piling supers back on. We spin all our cappings.

(All photographs and captions supplied by Merrill Frisque.)

tion to the bee work in season, he always has plenty of occupation during the off months. He is an expert photographer and all the pictures that illustrate this story were taken by my brother Merrill.

Our main package shipper supplies us with two and a half pound packages (which we like the best) and they are installed between April 5 and April 15 in standard 10 frame Langstroth bodies of comb containing pollen and honey. These installation bodies have been in storage all winter. They were removed with the crop of the year before and the middle portions of the center combs were extracted, the remaining honey left with whatever pollen may have been gathered, for use in spring when the packages are received. These bodies are painted gray to distinguish them from the other supers. They contain dark combs while the actual super combs are mostly light colored or

white combs since they are not allowed to be used for brood rearing at any time.

Each year I have some additional packages shipped (35 in 1955) to keep the outfit up to par, so they are all good colonies and no duds. Some of these packages come through with two queens and these are divided to make two units. The majority of the package colonies usually go along without any trouble. But those that must be requeened are requeened with nuks which were formed from the extra packages. An entire nuc is slipped into the center of the hive body of the colony to be requeened.

The dandelion flow from May 12 to 30 carries the colonies over the critical period from June 1 to 15 without any additional feeding. In an average year, by May 15 to 20 the colonies are ready for the addition of a second body. This is a jumbo size body (10 frame width and Mod-

fied Dadant depth) with dark combs containing honey and pollen. These are slipped under the standard bodies in which the packages were originally hived. Before the addition of the jumbos and only then, all the standards are examined by tipping them back and examining the combs from the bottom. You can tell the condition and the strength of the colonies better from the bottom than from the top without having to pull out combs. Any colony not up to par can then be taken care of separately without disturbing the rest of the outfit. Since the queens usually have the standard 10 frame bodies well filled with brood when the jumbos are added, the queens continue to work on readily and keep a fairly clear brood nest down below.

Between the 12th to 15th of June the colonies are ready to be demareed and supered just as the honeyflow is beginning. We then clip the queens

and box them down to the jumbo bodies with excluders. One empty super of extracting combs (nice white combs) is put above the excluder. Then the standard body, chuck full of brood, is placed above the first super; then a couple of additional supers of combs on top of all. This takes the pressure off below and, properly timed, stops 90% of the swarming and gets the bees working in the supers right away.

Within a week after the flow has started each colony will be working in three and four supers above the bottom brood chamber. Of course, one of these is the original brood chamber which is now being filled with honey as fast as brood emerges. Keeping the producing colonies going full blast is now the main job. Principally it means making sure that they have plenty of super room at all times. We top super, of course, otherwise it would be a man-killing job. When excluders are used the top super is always the one that lets you know what the colony is really doing. Colonies are watched closely for proper supering.

When most colonies have six to eight supers that is usually the saturation point and it is time to get them off. This is about July 15 to 20 and we take off everything but the first super above the excluder and possibly the top super which may not yet be finished. From then on after extracting we continue to give the empty supers back to the colonies for the second flow which comes in August.

We take off the honey with acid trays and average 100 to 125 supers a day with two men. We remove the gray supers that served as starting chambers for the packages right along with the other supers. These are usually well filled with honey in their dark combs and usually with

enough pollen to last in spring until new pollen comes in from early maple.

The second flow usually comes about the first of August and some years it may be as good as the early flow. After the first run of extracting in this second flow is over we cage the queens in the jumbo brood chambers usually about August 10. Caging the queens is quite a job but at the same time we inspect for disease and the heavy stacks are lifted off all at once with a hive lifter so that finding the queen is not too difficult.

Usually by September 1, the flow is entirely over with the alfalfa crop in hand, all brood emerged and colonies ready for gassing. We gas the entire yard when there are no robber bees around and it does not take long to get the honey in, clean brood chambers and store them away, along with the package-hiving standards, in small buildings right in the center of the yard. The jumbo brood chambers will then contain quite a lot of pollen brought in during August after the queens have been caged and stopped from egg laying and some honey. The jumbo brood chambers and the standard brood chambers are stored in the buildings together so that we have them handy to put out early in the spring for the packages. Roads are never too good in spring, and we try to avoid all unnecessary hauling.

This system can be worked with two standard brood chambers, but the standard is really too small. You can use three standards but the extra work and cost is not worth it. I prefer the jumbo or the Dadant with shallow supers.

I might say something about our honey house and honey handling. Our honey house is equipped with two stainless steel extractors, special capping buckets with removable fronts, sump tank with two baffle plates, and two tall settling tanks.

The honey is not strained. It is heated and pumped over from the sump tanks and is cleared by gravity.

We use a closed panel truck which can handle two tons to a load. At the honey house all stacks of supers roll out onto an extracting platform which is at truck level. We wholesale our honey and do not care to go into the retail end of it. One interferes too much with the other and it is hard to do a good job at both.

With a small and efficient crew and our farthest outyard only twelve miles away, and taking full advantage of the season, I believe we can operate at considerable more profit with less overhead and depreciation with this system. We shift very few frames, take a yard as a complete unit, with the two proper brood chambers as the key to the whole plan.

We have made some progress but there is room for further improvements each year and with the advent of better bees, we can see that four to five hundred pound averages are not impossible.

Beekeeping has got to be in your blood. Experience is not just a matter of adding up the years but of continuous improvement, learning what to do and what not to do. In the future I would like to have some time to travel and visit with various beekeepers throughout this land of ours plus doing a little hunting and fishing along the way. My dad, 81 years old, still hunts with me and gets around like a man of 60.

About hunting, our outfits are described in "American Waterfowl" by Bert Chaflin and in "Wildfowling in the Mississippi Flyway" by E. V. Conett. A lot of my spare time during the off-season is taken up with hunters who want to improve their methods and outfits.

As Ed Murrow would say: "Good-bye and good luck."

Australian Exports

The Australian Bee Journal for October reports honey exports from Australia, 1954-55, as 23½ million pounds. Of this amount Western Germany took half, and the United Kingdom most of the balance. The price figured at about 12½ cents a pound.

The Bacteriophage and American Foulbrood

Dr. T. A. Gochnauer, at the University of Minnesota, has isolated a bacteriophage (a virus that kills bacteria) which destroys some strains

of the bacteria causing American foulbrood. This may open a new path to control. For instance a Georgia strain of American which seems resistant to sulfa has been found to be destroyed by the bacteriophage. But it has also been found that some strains of the disease are not affected by the bacteriophage. There is much work still to be done.

Floods in the West

The floods in northern and central California, as well as in other areas, must have taken a heavy toll

of bee colonies. The full extent of the losses is not known but it is evident that thousands of colonies must have been lost in the rampaging rivers and streams that quickly flooded hundreds of square miles of fertile farm land. While beekeepers have been warned to winter their bees in areas that have never been flooded, this past flood has been the worst one in history. The small apiaries on farms, which are seldom moved, and colonies that were placed in the orchards before the rains came, were the hardest hit.

J. E. Eckert.



Sign one, with changeable supplementary sign; this one for comb honey.



Same sign but the lower one for white clover honey.



This lower sign tells its own story. Any number of changes in signs can be made by this method.

Honey Signs

by Thomas Doonan, Des Moines, Iowa

(Art work by Ralston James, WHO-TV, Des Moines, Iowa)

The main sign is 4' x 6' and is located in front of the author's residence in a commercially zoned district, on one of the busiest avenues in our city. Many visitors and friends have commented on our beautiful sign, which is painted in brilliant colors on a light background, and duplicated exactly on both sides; it has indeed been a traffic stopper. People from all parts of the city have dropped in to see what this new business enterprise is all about, and almost without exception they buy honey. Customers are beginning

to show up from surrounding towns, and a few from other states have come to our door. We keep an active guest book handy, which sooner or later is likely to be most valuable to us.

Now for a word of explanation about the auxiliary signs. Comb honey, usually being the first of the crop, is featured accordingly in the first picture.

When strained honey becomes available also, the white clover sign goes up indicating that something new

has been added, yet not excluding the comb honey, which of course is available for some time yet.

Next, when we took our vacation, we didn't want folks to be disappointed at not finding us home, so a few well-chosen words on sign number three tells the complete story in a distinctive manner.

Back from vacation, the white clover sign was hoisted once more, and in just a few days customers were knocking at our door again. We were open for business as usual.

Let-Alone Hive

For a let-alone hive, the brood chamber may be placed on top and the supers underneath. To provide an entrance, push back the brood chamber one or two inches. A variation is to permit the queen to expand her brood up through every body. When body of empty comb is added, bait it with two or three combs of unsealed brood. In the fall the brood chamber will then be at the top of the hive.

Julius Lysne
Stockholm, Wis.

Want an easy way to get your renewal or an extension to your subscription to the Journal? Want some books? Or just plain cash? Write up some of your worth while ways of doing things and, if we accept them for use, you can name your own reward. Lots of readers need to know about easy ways to do things. What you write may be short or it may be a page or two in length. Diagrams or pictures will add to the story.

Swats Bee, Fined \$5

Mrs. Henrietta B. Hewitt, 63, pushed down too hard on the accelerator of her car as she swatted a bee that flew down her neck.

That was the story she told in Recorder's Court after pleading guilty to a speeding charge. As evidence she produced a slip she said she was wearing at the time. It had a squashed bee in the lace. Impressed, Judge Henderson Riggs fined her \$5 instead of the usual \$20.

(From the Los Angeles Herald Express. Sent in by E. R. Newell)



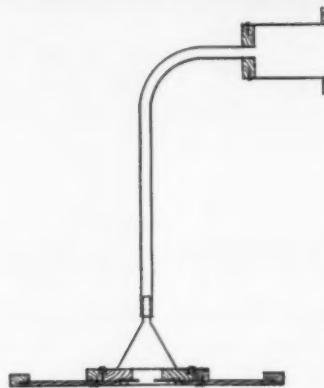
Transfer by Hose and Funnel

by F. D. Cundiff

The whole outfit in place and working shows in the picture but the details are obscure and the diagram shows the set-up. Just an ordinary twenty-five cent funnel is used over the hive, fastened to a three-fourth inch board with a hole cut out large enough to take care of the bee escape hole in the inner cover of the hive. Then fasten a piece of old discarded garden hose or a piece of plumber's plastic pipe to the small end of the funnel. Cut out both ends of a No. 303 tin can and fit a circular block in one end with a hole in it large enough to take care of the hose. Cut a hole in a board large enough for the other open end of your can and you are all set to fit your outfit to a tree or to a building. You may have to build up around the original entrance so everything is tight.

Under the funnel I use a bee escape in the escape hole to keep the bees from working back into their own home. Examine the escape every few days for the drones will often die and block the openings. After about two weeks you can take the escape out. Don't remove the inner cover on the hive unless it is absolutely necessary.

When the hive is first established for the transfer give it a comb of brood and some frames of drawn



comb. If you don't use some brood the new queen may not be accepted. Give the colony a queen but leave the candy end of her cage protected for at least five days so the bees cannot release her. Then allow the bees to release her. It might be that a comb with queen cells would work with this method but I have not yet tried it.

In about four or five weeks you can remove the hose and funnel as the bees will all be out of their old nest.

Tennessee

How to Introduce Queens

Colin G. Butler discovered the "Queen Substance" (July ABJ, 1955) given off by the queen's body, which apparently prevents the production of more queens in the colony as long as its presence on the queen persists. Based on this discovery Dr. Butler makes these suggestions for successful queen introduction:

1. The colony to be requeened should not be left queenless for more than a few minutes. The longer the colony is queenless, the more failures in queen introduction, in Butler's experiments.

2. Introduce the new queen directly and alone. Attendant bees introduced with the queen tend to alert the bees in the colony and increase the hazards of queen introduction.

3. Introduce the queen in a cage. The cage should be designed so that the queen is automatically released in a few hours without help from the beekeeper.

4. The mesh of the cage should be large enough for the bees to feed and lick the queen. This licking enables the bees to receive the queen's "queen substance." The larger the mesh the better, provided the bees cannot get through it. Many mailing cages used for queen introduction today have too fine a mesh.

5. Do not provide the queen with food. If given a chance the bees will provide the queen with the proper food. This contact with the queen facilitates her acceptance by the colony.

6. Place the queen cage between the frames containing the youngest larvae in the colony. The nurse bees in this area have more of the proper food for a queen than the other bees and also desire "queen substance" the most.

Dr. Butler has used a wire screen cage about three inches long and one-half inch in diameter for queen introduction. One end is closed with a wooden plug. The other end is closed with a single thickness of newspaper held in place by a rubber band. The queen is placed in this cage without workers and food. This cage is then placed between two combs of young brood. The queen should be released by the bees in less than 24 hours.

(From B Notes, Colorado, July 1955)

Tip the Hive

In making manipulations, tip the hive over on the ground on its side. Separate all bodies and set them on the back end. The bodies may then be replaced in any order you desire. Be careful of new combs.

Julius Lysne
Stockholm, Wis.

Some Things A Beginner Needs To Know

These pointers were given in a talk by Elizabeth Lewis at a meeting of the Puget Sound Beekeepers' Association, in Seattle, Washington, in August. Miss Lewis has been a legal secretary for about twenty five years. She has a five acre tract of land fifteen miles from Seattle and includes bees in her projects. She has taken

part in TV programs sponsored by the University of Washington, along with Prof. Geo. S. Smith, Capt. L. W. Bundy, Geo. Hunsdorfer, Dr. Joe Brugman, and President Eugene A. Mueller, all members of the Puget Sound group. These notes were furnished by President Mueller.

Those of us who are beginners need a lot of help and a lot of assurance and confidence instilled into our systems. We need to have things repeated to us because we cannot take in all the information in one sitting. One way I get information is to ask the experts at bee meetings some of those idiotic questions they get in the question box or from the floor.

We have heard that it costs about \$25 to set up for one hive of bees, including the hive body, the supers, frames, foundation, bottoms, covers and the bees. Add to that gloves, old straw hat for the bee veil, hive tool, brush and so on.

Here is how I got started. My expense to begin with was less than that because I bought from my nephew 4 hive bodies, 2 supers, 2 comb honey supers, covers, bottoms, and two roofs, made in miniature like you would make a house roof, with a red composition cover, and with an overhang over the front. They are heavy enough not to need a weight on top. They are attractive, and, with the hives painted white, they are a pleasant sight. All of this for \$10.00.

Then I found that the super size was obsolete and foundation could not be secured to fit. So I had to get new supers and all the required equipment for them. I disposed of all the old frames and installed new ones because I could not be sure, even if I scorched them, that the old frames were disease free. If you consider the value of your time, new frames and foundation are cheaper and you are sure of no disease. I brushed gasoline inside the hive bodies and scorched them out.

Then I ordered two packages of bees. During the waiting period locations were selected for the hives. We set the bottoms on cement building blocks. This gave us the proper

amount of space from the ground and the front blocks were tilted slightly downwards to allow water or condensation to run out the front. The hives were faced south. We provided landing boards also.

To start the bees out we used sugar syrup, each gallon feeding with a fourth teaspoonful of sulfathiazole. George Hunsdorfer, of our Association furnished a couple of drawn combs for each hive and helped gently ease the bees into their new homes. The bees took to their new abodes and they were gentle then and easy to handle. Every Sunday George would stop by—to look at the bees, no trouble at all, he would say, as he was just going by anyway.

So we watched the bees—to see if the queens were performing their duties; to see if the bees were satisfied with them; whether the queens were drone minded or if they produced worker bees. And to look for queen cells. We hoped for good weather, an abundant honeyflow, and the cooperation of all the elements, to make a successful start in the keeping of bees.

(More from Miss Lewis in March)

QUEENS—

By the Swarming, Supersedure, or Queenless Impulse

By H. M. PEARSON, England

There are three impulses under which the bees of a colony will produce new queens; queenlessness, supersedure, and swarming. In both swarming and supersedure the bees are raising queens under natural conditions and the young princesses, in their waxen cradles, are doted upon, looked after, fussed with and royally fed with lavish care so the resulting virgins are the best of their kind.

But not so with queenlessness. Calamity and tragedy have suddenly struck the colony and its whole life is disorganized. When the bees have recovered from the first shock and realize that their queen is lost they immediately set about raising another. In their haste to make good the loss, for the life of the colony is at stake, they may build some queen cells around larvae that have already been weaned. So unless the beekeeper removes the first sealed queen cells the virgin least fitted to be the queen will be the first to emerge and so may, in all probability, become the queen mother. The same would apply also to the beekeeper if, instead of destroying these early sealed cells, he gives them to nuclei.

I am not a physiologist but this I do know. I have examined queens raised by the queenless impulse and I have found that, when the distal end of the tibia of the last pair of legs is seen under a microscope, stiff spines are observed like those of a worker instead of the soft hairs proper to a normal queen.

Since it is the feeding of a royal jelly that produces the difference between a queen and a worker then it follows, if the queen has a physical defect due to the lack of proper feeding throughout its larval period, how much more then must there be some sexual abnormality in her reproductive organs.

Another disadvantage of queens reared under the queenless impulse is that during the queenless period the bees do not work normally because they have become disheartened and if there is a honeyflow in progress the crop will suffer.

So, from any point of view, queens produced under the supersedure or swarming impulse are superior. One point that should be stressed is, that irrespective of the method used and whether there is a nectar flow on or not, nuclei, being unable to fend for themselves, should be fed continuously.

Other than by grafting, I am sure the most successful method of rearing queens is to raise the brood nest above the supers, retaining the queen in the bottom. Supersedure cells are produced in this way, in the top, which can then be dealt with in any appropriate manner and the honey harvest is unimpaired. There are many methods, all of which have been given in detail at one time or another, but in my experience the Snelgrove system is easily the best.

Getting Started in Beekeeping

W. W. Clarke, Jr.

Extension Apiarist

Pennsylvania State University

One of the first questions that a person who is considering keeping bees should ask himself is, "Am I really interested in learning the habits of bees and working with them?" An affirmative answer is necessary for a successful venture in bee business. There is probably no better hobby for anyone who wants complete relaxation in the open air. Bees will not tolerate tension or haste so it is essential that the beekeeper move slowly and easily. The study of the bees is fascinating, there is always something new to be learned from them. One may spend much time or a surprisingly small number of hours in keeping bees.

It is not enough to want a colony of bees merely to pollinate a fruit tree in the yard, or because the garden flowers smell as if they would make delicious honey. There is no question that fruit needs insect pollination but, if the fruit grower does not take proper care of the bees, it is much better to rely on someone else's bees to do the job. Also it is doubtful that many of the garden flowers add very much to the honey crop.

Actually anyone who is not allergic to the sting can keep bees and only those who are supersensitive need fear the sting. A few stings, although they are painful for a short time and may cause swelling, will do little damage. It is unfortunate that the

only thing so many people know about bees is that they sting. The classic remark among beekeepers about a bee sting is that the stinger is about a quarter of an inch long; the other six inches are pure imagination. A casual study of remedies for stings shows that several pages could be filled with various remedies. Some of them are: raw Irish potato, sassafras leaves, drone brood food, scarlet pimpernel leaves, spirits of camphor; each of which is to be rubbed on the afflicted area. One man dusts his hands with talcum powder to prevent stings. Actually each of these cures, plus time, probably helped at least one person. However, the best thing to do is scrape out the stinger and forget about it. If there are signs of sickness, a physician should be called.

It is good sense for a beginner, especially, to protect himself by wearing a veil, gloves, and tying his pants legs down. It has been said that when a bee gets up the pants leg, it is not a question of whether it will sting but only when and where. In selecting gloves, it is wise to choose a pair of leather or plastic coated ones that fit the hand well. They are less clumsy and bees cannot sting through them as they can through canvas gloves.

To begin keeping bees, it is necessary to have bees and a house for them. The house or hive is a box with movable partitions called frames.



It may be purchased from a bee supply house. Bees may be ordered as a package from one of the southern queen breeders. A complete colony of bees and hives may sometimes be obtained from a local beekeeper. There are two types of honey produced: comb and extracted. Comb honey is stored in the hive in special boxes or sections which the beekeeper prepares. These are removed and used intact; a delicious blend of honey and wax which is the perfect accompaniment to hot biscuits, or waffles! Honey to be extracted is stored by the bees in frames. When these are full, the beekeeper removes the honey by centrifugal force and replaces the frames in the hive.

Almost without exception the new beekeeper decides to produce comb honey. He thinks it is cheaper since he does not have to buy an extractor. Actually one must consider the fact that he can, with proper care, use the same comb year after year, producing two or three crops in each comb every year; while for comb honey production new foundation and sections must be used for each crop. The storage problem is not so great for extracted honey as for comb honey; and there are more uses for liquid honey.

As the new beekeeper learns more about bees and beekeeping, he would do well to increase his number of colonies and produce both comb and extracted honey. Regardless of the kind of honey that is produced, it is essential to have on hand a supply of supers ample enough to store the crop. This usually amounts to three or four supers, in addition to the hive body or brood chamber. A beginner should use a one and a half



Good winter protection. Entrances reduced.

story hive (that is a full depth super plus a shallow super), in addition to his three or four surplus supers. He may not need them all the first year but they will keep. The hive also consists of a bottom board and a cover.

A beekeeper also needs a small extractor, bee veil, smoker, hive tool, and gloves. Full sheets of foundation should be placed in each frame or section. The beehive or equipment should be assembled during the winter so that it is ready when the bees arrive (assuming that a package has been ordered).

It is important to have a source of information so the beginner should obtain a good bee book and study it carefully. An extension circular from the State Agricultural College or County Agricultural Agent will be a great help. Do not take too seriously all the suggestions offered by relatives and neighbors who kept bees fifty years ago. Times change for beekeepers too. Subscriptions to one or more of the trade journals will do much toward widening thoughts and understandings of this subject. Many states have 4-H Bee Clubs where boys and girls between the ages of 12 and 21 may carry bees as a project and obtain information in good beekeeping practices.

It is important to find a good location for the apiary, whether it be one or twenty colonies. These items deserve consideration: good air drainage; morning sun, or bees facing south or east, only partial shade; ease of accessibility; windbreak for winter protection; and consideration for neighbors. The beekeeper with his first colony of bees will probably plan to keep them in his backyard. In this case, he should try to face them away from his own and his neighbors' work and play areas. Placing them behind a hedge or building will force them to fly high enough to keep out of trouble. As the apiary increases in number of colonies, the beekeeper should plan to move the bees to the country. Almost any farmer will be glad to make arrangements for a location.

Robbing

Use several large cloths, dripping wet in carbolic water, to put over hive and parts if robbing is apt to occur. This will keep down robbers effectively unless the work continues too long.

GH

Honey and Your Diabetes

No. 11

by D. C. Jarvis, M. D.

In my first article in this "Honey and Your Diabetes" series, I asked readers of the article to write me their experience with honey in diabetes, whether good or bad, either in themselves or others, so that I might have the experience of those living outside of Vermont. I received two letters which interest me very much. The first of these comes from Minnesota and reads as follows:

"Dear Dr. Jarvis: I have been a diabetic for about 17 years. I have also been a commercial beekeeper for about 20 years. I value very highly the qualities of honey as a health food and with all my heart wish that I could say and believe that honey can be used by diabetics but from personal experience and also from one or two others with whom I have discussed it, honey reacts approximately the same as sugar when insulin is not taken.

"A diabetic must have food. Starches as well as sugars do him little good without the aid of insulin. It has been my practice during the years in which I have had diabetes to use insulin and to enjoy honey the same as normal people do. I work as most other folks do. If a diabetic must overstep the bounds of a diabetic diet do it by eating a little honey. I have found it not too harmful and very enjoyable."

The second letter comes from New York State and reads as follows: "Dear Dr. Jarvis: In response to your request in the American Bee Journal I am writing you about my use of honey in diabetics. Perhaps I can help someone else by doing so.

"During 1921 I developed diabetes and was put on a diabetic diet. This did not work out well for me. After two years on this diabetic diet and the use of saccharine as a substitute for sugar I went to Albany, N. Y. to consult a doctor who was brought up in our home town. This doctor advised me to use honey in moderate amounts.

"During the past 20 years I have not eaten over half a dozen slices of white bread. I eat only rye bread. I do not eat cakes but eat all kinds of pie. With this exception I have eaten almost everything during the past few years. I have eaten plenty of honey and continue to do so every day. It has been 10 years since I have

shown any sugar in my urine. For 20 years I have taken a solution of potassium iodide each day. At first I took 3 drops at night. Later this dose was increased to 5 drops. At present I take 8 drops. The potassium iodide was advised by a New York doctor."

The writer of the first letter takes insulin each day which enables him to enjoy honey as normal people do. The writer of the second letter takes potassium iodide each day and is able to eat plenty of honey each day without sugar appearing in his urine. As insulin has a potassium effect in the body, its use and the taking of potassium iodide bear out the belief of Vermont folk medicine that diabetes mellitus is a potassium deficiency disease and will be favorably influenced by a daily intake of potassium. Honey being a good source of potassium its use may be tried out by an individual with diabetes mellitus in order to learn whether it works well. For one having a family history of diabetes mellitus, honey should be the sugar used in order that the influence of family heredity may be lessened and normal health continued.

Vermont

New Zealand

Blending Honey . . .

In this particular area, suitable blending honey is only obtainable once every three years due to a strange cycle of blooming peculiar to our native Rata trees. In the seasons in which Rata does not bloom, apiarists are forced on many occasions to dump their crop as no use can be found for it.

This honey, which is produced from Kamahi, a native tree of New Zealand, is suitable for making meads, but unfortunately very little information is known on the subject of its manufacture.

It is on this matter I would like to ask your assistance in providing information concerning the manufacture of meads and wines, also some sound formulas if possible.

To find a sound use for Kamahi honey would be of great help to the apiarists in my area.

D.W.A. Seal, Apiary Instructor, Greymouth

Mates For Hybrid Queens

by Harry H. Laidlaw, Jr.

University of California, Davis

One of the most important considerations in rearing hybrid queens commercially is getting them mated to particular kinds of drones. This consideration is not peculiar, of course, to hybrid queen production; it is a factor in all commercial queen rearing. Traditionally, queen breeders have met the problem of providing proper mates by requeening their own colonies, and as many other colonies in the vicinity as possible, with the desired stock.

The advent of hybrid queens in recent years intensified this problem. It is now not so much a matter of mating queens to the beekeeper's own stock as it is mating them to a particular pedigreed line or cross between lines. This specificity is necessary to obtain the full benefit of the hybrid bee program, although some hybrid queens mated at random perform exceptionally well.

Under current practice, queen breeders who are using improved stock are customarily provided with two lines of stock each year. The hybrid queens are derived from one line which might be designated the "queen line," and the drone mates of these hybrid queens are derived from the other line which might be called the "drone line." Grafts are made from the queen line to produce the hybrid virgins, and the original queens are used and maintained in the manner customary for breeding queens. The original queens of the drone line are used only to produce a limited number of daughters which then produce the drones. These daughters are usually hybrids also and are permitted to mate at random. They are placed in the mating yards in sufficient numbers to provide an abundance of the desired drones.

It would seem that this system should be satisfactory, but in practice it has certain failings. First, the queen breeder may receive the stock too late in the summer to rear and establish the drone mothers in the fall. If drone mothers are not established in the fall they may not be

established at all because it is often difficult to establish drone mothers early enough in the spring to have their drones mature for the early virgins. Second, the establishment and care of special drone colonies is outside the usual queen rearing routine and many beekeepers dislike such operations. Consequently, the production and utilization of the proper drones may be neglected. Third, even if the drone colonies are established early and properly cared for, it is difficult to have as many drone colonies as are needed to populate the area with desired drones and they may be less effective than anticipated in bringing about proper matings.

The most promising solution to the problem of providing proper mates appears to lie in a system of rotation of breeding stock by which a cross between inbred lines is the queen line one year and the drone line the next.

To establish and maintain such a system it would only be necessary for the queen breeder to receive queen line mothers. The first year he might also receive drone line mothers and use them as discussed above, but even this would not be necessary since the hybrids could mate with his own stock with probably acceptable results.

Toward the close of the first season's queen rearing activities all colonies in the vicinity of the mating

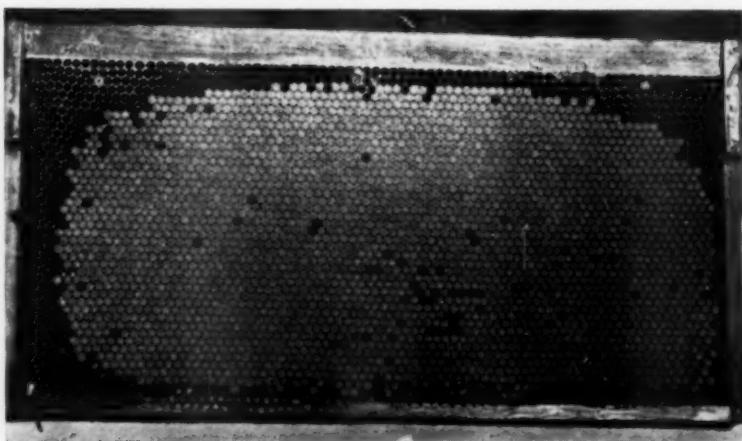
yards, and as many others as possible, would be requeened with the hybrid queens. Next year, these queens would be the mothers of the drones which will mate with the hybrid daughters of the new queen line breeders. Thereafter, each year toward the close of the queen rearing season, all colonies would be requeened with hybrid daughters of the current queen line breeder. Thus an abundant supply of the proper drones would automatically be provided, and the queen breeder would need to receive and use only one kind of breeding queen each year.

The third year the queen line could be the same as the first year or it might be a third cross.

Imperial Valley Beekeeping

June issue of Imperial Valley (Calif.) Farm Bureau Monthly devotes considerable space to the prominence of beekeeping in the Imperial Valley. Some 60,000 colonies are claimed for the Valley, with crops valued at close to \$750,000 annually.

Some complaint is registered by the beekeepers against the indiscriminate use of parathion and other insecticides, particularly harmful to bees, without proper cooperation with beekeepers to prevent such losses.



Brood from a properly mated hybrid queen.

What Can The Honey Bee Smell?

by Ronald Ribbands

Author of "The Behavior and Social Life of Honeybees"

In several preceding articles I have told how worker honey bees have been shown to possess distinctive odours, derived from the different diet which is consumed by each colony, and of how these distinctive colony odours enable the bees to distinguish their comrades from other honey bees. Having demonstrated that the bees could recognize such subtle differences between scents, I decided to try to measure their capacity for detecting scents, and for distinguishing between various mixtures of scents; pure chemicals were used for this purpose (the honey bees' body odours could not be measured or standardized), and they were diluted with known quantities of ethylene glycol.

The following technique was developed: An old bicycle wheel was mounted horizontally on a board, so that it could be slowly rotated by hand, and a garden sieve placed on the wheel served as a platform (see illustration). Three flat glass dishes were placed on the sieve, and a pair of 2 x $\frac{1}{4}$ inch glass tubes, fastened together with an elastic band, was placed on each glass dish. One of the six tubes was filled to a depth of 1 $\frac{1}{2}$ inch with ethylene glycol solution containing the scent to which the bees were to be trained, and the top of this tube was covered with cotton mosquito netting so that the solution was beyond the reach of bees. The other tube of this pair was filled with sugar solution. One of each of the other pairs of tubes containing ethylene glycol only (for threshold experiments) or mixed with another scent (for discrimination experiments) and these tubes were also netted; the other member of these pairs was filled with water.

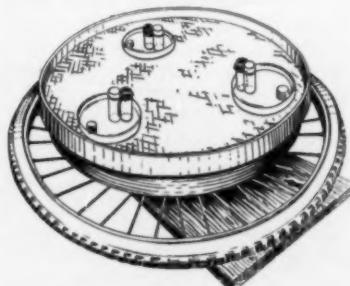
Six to ten individually marked bees were trained to collect from the tube of sugar solution, and at short intervals the bicycle wheel was rotated so that the bees did not become accustomed to feed at any position on the feeding table. After training, sets of new tubes were put out for each test. Three netting-covered tubes were filled with solutions similar to those used during training, but their three partners were empty, and tests were continued until the bees had

demonstrated whether or not they could recognize the training scent.

Several scents were still recognized when dissolved 1 part in 100,000,000 parts of ethylene glycol; these absolute values become more informative if they can be compared with human abilities—this comparison was made in respect to two of the scents, methyl heptenone and geraniol, and the results indicated that the honey bee could perceive them when they were diluted to one-fortieth and one-hundredth, respectively, of the concentration at which they were perceptible to humans.

In discrimination experiments, bees trained to visit a mixture of equal parts of two scents (e.g. benzyl acetate and linalol) distinguished this mixture from mixtures which contained 9 parts of one scent and 11 parts of the other. Eight humans were tested with the same pair of scents, and their best achievement was that two of them, only, could just detect the difference between a 4:1 and a 1:1 mixture.

These results demonstrate that the sense of smell of the honey bee is very much better than that of humans, both in respect to smelling things which we cannot smell and to distinguishing between mixtures of scents which smell alike to us. As the honey bee has to rely on her sense of smell for existence that is not a surprising conclusion, although it is in conflict with the results of earlier experiments on the subject (these were carried out more than thirty years ago, using a less sensitive technique, and modern statistical methods were not then available for interpreting the results).



Apparatus for investigating scent perception.

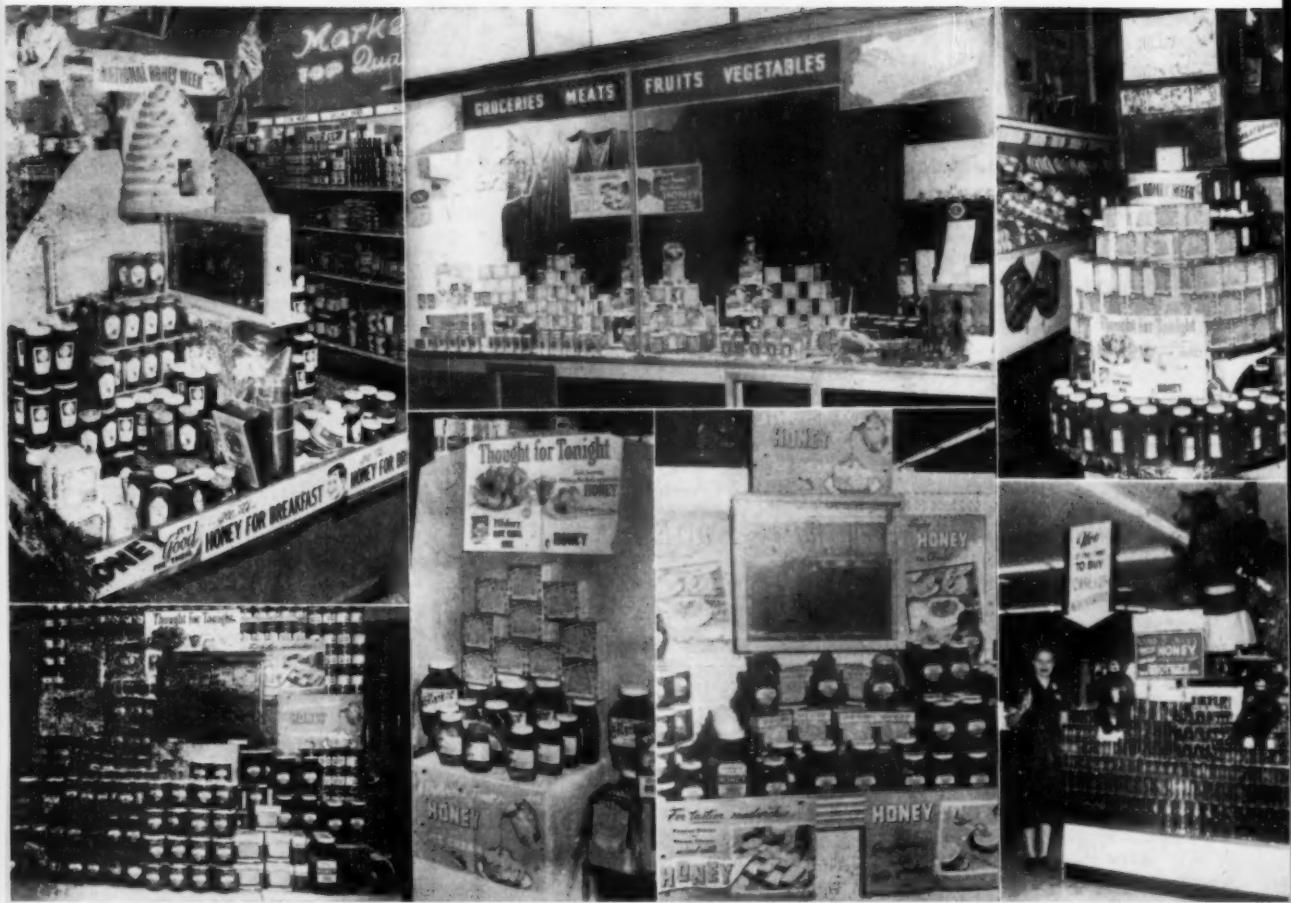
One modification of the bicycle-wheel experiments showed that honey bees could be readily trained to seek out the scent of red-currant flowers, although earlier experimenters had said that those flowers were scentless to both honey bees and humans; so it is possible that other flowers which have been regarded as scentless can also be smelled by honey bees. However, repeated tests indicated that bees were not able to distinguish between water and solutions of pure sugar until they touched them; the sugar had no smell.

Other modifications of the technique, in which no scent was supplied, provided more information about the sensitivity of the honey bee to its own body odor. I discovered that a bee would visit a syrup-filled glass tube at which it had fed a short time previously, selecting that tube from otherwise similar tubes which had not been visited—this happened although the syrup was diluted and the bee had not exposed its scent gland during its visit. A refinement of the method then revealed that a single bee could even recognize, and choose from other similar tubes, an empty glass tube on which it had made only two or three momentary landings—without finding any food—more than ten minutes previously.

One may suppose that a substantially greater quantity of body odour would be left behind by any bee which collected food from a flower because it would spend more time, and make more movements with its body, on a surface which would be more suitable than glass for retaining scent; and so this body odour may often aid bees in their foraging. Body odour may not only serve as an attraction: from many kinds of flowers a visiting bee removes all the available nectar or pollen, and the supply is not replenished for some time—bees foraging from such flowers might save time by learning to avoid blossoms impregnated with bee odour (von Frisch has shown that bees can be trained either to avoid a scent or to go to it). The persistence of bee odour is one of its most important characteristics, and this persistence makes it possible for the bee to use it, not only for the orientation of its comrades but also to guide itself on a return journey.

Full details of the experiments which I have summarized in this article were published earlier this year in *Proceedings of the Royal Society B* 143, pages 367-79.

(Concluded on Page 71)



1st prize, top left, H. Elmer Mishler, Altadena, Cal.; 2nd prize, top center, Earl M. Chaney, Decatur, Ill.; 3rd prize, top right, Henry Nepper, Minneiska, Minn. Five of the runner-up winners: Lower, left, Clarence

Kraby, Austin, Minn.; left center, below, Paul Ashers' Apiaries, Hastings, Minn.; right center, below, Clarence Kraby, Austin, Minn.; lower right, Honey Sales Co., Minneapolis, Minn.

Honey Display Picture Contest

Twenty-four entries were received in the Federation's Honey Display Picture Contest — not as many as expected but enough to make some very keen competition. Our congratulations to the winners and thanks to all the participants for their efforts.

One of the Judges has prepared a summary of explanations for choosing the top entries as winners, which we hope to publish in a later issue. The summary makes some good pointers on the why's and why not's of good displays and will be of interest and help to readers in planning displays not only for honey promotion work but for any future contests. Only the first prize picture is in-

cluded in this issue. The others will be carried in future issues.

The winners are as follows:

1st Prize—\$50.00 to H. Elmer Mishler, 79 W. Manor St., Altadena, California. \$50.00 duplicate prize to store manager Dan Flint, 2619 Catherine Road, Altadena, Calif.

2nd Prize—\$30.00 to Earl W. Chaney, 1625 E. Division St., Decatur, Ill. \$30.00 duplicate prize to manager Robert Bateman Food Store, 136 S. Main St., Hillsboro, Illinois.

3rd Prize—\$20.00 to Henry Nepper, Minneiska, Minn. \$20.00 duplicate prize to manager National Tea Store, Winona, Minn.

The five runner-up winners and

store managers each receiving \$5.00 are as follows:

Clarence Kraby, RFD 3, Austin, Minn. and Manager Red Owl Supermarket, 102 East St., Austin, Minn.; Honey Sales Company, 2817 N. Second St., Minneapolis, Minn. and Manager, Red Owl Super Market, Crystal, Minn.; Collie Burt, Box 284, Newberg, Oregon and Erickson's Super Market, S. Commercial St., Salem, Oregon; Paul Ashers' Apiaries, Hastings, Minn. and Manager, Werths Food Center, 405 Vermillion St., Hastings, Minn.; Clarence Kraby, RFD 3, Austin, Minnesota and Manager Piggly Wiggly Super Market, 203 Courtland St., Austin, Minn.

From The Honey Plant Gardens

by Melvin Pellett



Vitex Incisa Negundo

This plant flowers the first year from seed, is a long-lived perennial, has an exceptionally long blooming period, and is an outstanding honey source—all these features in one plant. That is *Vitex incisa negundo*, an attractive shrub or small tree which has been described in bee magazines and often mentioned in these columns in recent years. We are continually reminded of its outstanding features and receive further information regarding this plant in letters from enthusiastic correspondents.

Mr. D. N. Hull, Texas, relates that he planted some *Vitex* seed in a bed in the garden last April. From the planting he got 100 seedlings transplanted in rows; some grew to be four feet high, began to bloom in July and bloomed until the 1st of November, some plants with as many as 30 spikes of bloom which his bees worked from sunup until sundown.

We hear from Mr. E. W. White, Oklahoma including the following: "... I do feel that beekeepers ought to try this splendid shrub, all of them, everywhere ... We had a protracted dry spell in July, August and Sep-

tember and my *Vitex* quit blooming. We are having plenty of moisture now, and my *Vitex* bushes are blooming all over, and my bees are working them like mad. Even the plants that I grew from seed this year are blooming" . . . (October 4).

In the American Bee Journal Honey Plant Gardens are some *Vitex incisa negundo* plants which are nearly fifteen years old. We are subject to below-zero temperatures in winter here in southern Iowa and some winters the tops will kill back. But new growth comes rapidly and the plant blooms on the new wood. Even when the tops kill back, the plant always comes into bloom by mid-summer with much bloom lasting into fall and is visited freely by bees. Younger plants started from seed and those up to several years old continue to bloom in the fall until the blossoms are killed by heavy frost. The deeply cut leaves and many lavender-blue flowers in terminal spikes make it an attractive shrub. Here it grows six or eight feet tall. In states south of us, where the plant does not kill back in winter, it is reported twelve to twenty feet tall.

Although *Vitex incisa negundo* has

been sometimes reported as difficult to start from seed, we have also numerous reports of success in starting the seed. We usually succeed in getting a good lot of seedlings when we plant the seed in spring and keep moist conditions in the seedbed by several waterings unless there is frequent rain during the several weeks required for the seed to germinate and the seedlings to become established. The young plants then grow rapidly and make nice-sized plants in one year. We find that one year old plants transplant with better average success than do older, larger plants. We feel that *Vitex incisa negundo* is easy enough to propagate so that this variety should be widely used by beekeepers. Once established, the plant is reasonably drought-resistant. It is desirable for individual planting, or a screen or windbreak for many situations.

We have planted some *Vitex* along the bee yard on the side next to the road, replacing some older plum trees which were removed when the banks were sloped in building a new road grade. We expect the planting to provide an attractive screen, helping to raise the bee flight above the roadway, and also some bee forage.

We know few good honey plants with as long a blooming period as *Vitex incisa negundo*. There is often three months or more of bloom as compared to a much shorter period for sweet clover and most other best-known honey plants. Also, it blooms beginning the first year from seed while we must wait several years for most shrubs and trees to come into bloom.



Flowering branch of *VITEX INCISA NEGUNDO*.

Let the Vetch Bloom

In southern Illinois, where vetch is planted in the corn, it is proving best for the corn yield not to plow under the vetch. It is a two way proposition because this plan is equally good for the beekeeper since vetch there is a good honey plant.

W. J. Ghore
Centralia, Ill.



Margaret Seidelman Michigan's Sec'y

The Detroit Free Press loaned this picture of Mrs. Seidelman, and the material for the information comes from a feature article by Kay Savage that the Press published in "For and About Women" some time ago.

Mrs. George Seidelman shares with her husband the responsibility of keeping 800 colonies of bees producing honey. She has been working with

bees for about twenty years and she says she was a city girl who married into the bee business. Their bee business was started by Mr. Seidelman's father more than fifty years ago.

Dusting Sulfa

The dusting method seems to be successful. Use pulverized sulfa and

too dangerous to use inside without a gas mask.

We hear that powdered honey is being manufactured but we have not been able to locate a supply. Can you tell us where it may be obtained? — Ned Galloway, Neenah Milk Products, Neenah, Wis.

The only commercial source of dried honey of which I am aware is Food Concentrates, Inc., Box 71, Rahway, N. J.—

Answered by Dr. J. H. White, Honey Unit, Eastern Utilization Research Branch, U.S.D.A., Philadelphia 18, Pa.

I would like some information about Alyce clover. What about it as a honey plant? — Joseph Perry, Lake Charles, Louisiana.

Some years ago Alyce clover (*Alysicarpus vaginalis*) was tried in the Test Gardens. Germination was good but the plants grew poorly and were apparently unsuited to our conditions. They did not even come into bloom. There is con-

a powder blower. Put sulfa in the blower. Remove two combs and thoroughly dust both sides of each. Then blow dust down between the rest of the combs, parting them for the purpose. Then dust thoroughly over the frame tops after replacing the combs removed. This can be repeated again in ten days although one dusting is usually enough. The bees, being covered with the powder, carry it into the open cells and when honey is placed in them to be used as larval food, the honey takes on a small amount of the drug. Try it and see. I have 2,000 colonies and it works for me.

R. O. B. Manley
England

Hurricane Janet in Grenada

In Grenada, British West Indies, we have been crippled by Hurricane Janet. The storm hit us Sept. 22. Grenada is chiefly an agricultural island and everything in the fields was destroyed and 60% of the houses in the 140 mile wind. It rained for six hours with a precipitation of 15 inches. A great part of our bees perished in floods and by falling trees. Here in Grenada the bees are mostly black but I have learned considerable about the yellow races of which the Italians are top. Now I think the Dadant Starlines have outdated the once famous Italians.

Percy St. Louis
Dunfermline, Grenada, B.W.I.

Questions

How do you destroy moths or moth eggs or larvae in honey when it has been removed from the hive? Killion, in one of his articles, says he uses some kind of gas to fumigate comb honey. — C. Vigue, Milwaukee, Wis.

Killion uses carbon disulphide which you can get at the drug store. Two or three tablespoonfuls in an empty dish at the top of the honey will kill either moths or larvae. It will not kill eggs, so you will have to fumigate again in about two weeks. The gas is safe to use but it is explosive so there should not be any fire, lighted matches or lighted cigarettes in the room. Do not use any material such as moth fumigater (paradichlorobenzene) or cyanogas. The cyanogas is

siderable acreage of this summer annual scattered through the Gulf Coast Plain where it is grown for a cover crop, for hay and for pasture. Good drainage of internal and surface water is needed to grow it. But where it is adapted it is one of the best hay plants in the south. We do not have any information about it as a honey plant. — Answered by Melvin Pellett, Director, American Bee Journal, Honey Plant Test Gardens, Atlantic, Iowa.

How do you prevent bees from gumming up comb honey sections? Is there anything that can be put on them to stop this? — Oscar Erickson, Moline, Illinois.

To prevent bees gumming up comb honey sections, put melted, hot paraffin on them with a brush after the sections are filled with the foundation, ready for the bees. Apply it to the top and edges; all over the outside if you wish, only the sections lay against each other and it is not necessary to paraffin the sides.

Recipes

Ladies, do you have favorite honey recipes? Send them in. Your subscription will be credited an additional three months for each recipe published.

FESTIVE PUDDING

1½ cups honey
6 tablespoons flour

3 egg yolks

3 cups milk

Mix well and cook until thick. Add:
3 stiffly beaten egg whites
1 teaspoon vanilla extract
1 teaspoon lemon extract
1 teaspoon almond extract

Fold in 1 pint whipped cream and pour into refrigerator trays. Top with red and green candied cherries, chopped raisins and pecans. Freeze until

firm, cut in squares. Serves 12.
Mrs. Herbert Moore, Michigan

HONEY ANGEL FOOD CAKE

½ teaspoon salt
1½ cups egg whites
2 tsp. cream of tartar
½ cup honey
1 cup granulated sugar
1 cup sifted cake flour
1 teaspoon vanilla

Place a ten-inch angel food cake pan in a 425° oven. Add salt to egg whites and beat until frothy. Add cream of tartar and beat until it stands in peaks. Gradually beat in honey. Sift together the sugar and flour. Fold into mixture lightly and quickly by thirds, using a wire whip or spoon. Fold in vanilla. Remove cake pan from oven and pour in the batter. Thump pan several times. Bake 22-25 minutes. Invert pan for an hour after removing from oven or until cold. This was baked at an altitude of approximately 5,000 feet.

Lorean Nydam, Montana

YELLOW ITALIAN QUEENS
from Fumidil-B fed grafting yards and queen mating nuclei yards.

QUEENS \$1.00 each
2 lbs. of bees with queen \$3.00 each.

Live arrival and health certificate guaranteed.

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Canadian Bee Journal
Streetsville, Ontario, Canada

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SPEARS APIARIES, SIMMSPORT, LOUISIANA
Italian queens and workers that are quiet, pleasing to the eye, and industrious.

2 lb. pkgs. w/q	\$3.25	\$3.00
3 lb. pkgs. w/q	4.25	4.00
4 lb. pkgs. w/q	5.25	5.00
Young laying queens		95c.
Live delivery guaranteed—Satisfaction assured.			

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The finest thing ever offered beekeepers. See your dealer or write.

STOLLER HONEY FARMS
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Package Bees and Queens
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Davis, Calif.

WANT MORE HONEY?

— Use Starlines

In Memoriam

Ray N. Miller

Ray N. Miller, 58, of Murray, founder of the Miller Honey Co. in 1932, died January 6th following a stroke. His father, N. E. Miller, was a pioneer in the honey industry and a well-known migratory beekeeper. He served three terms as president of the Utah Association, and was a charter member and past president of the South Salt Lake Lions Club, and a charter member and zone chairman of the Granite Park Lions Club. He was born in Providence, Utah, in 1897 and was married to Clarice Stockdale in 1919. He is survived by his widow and by three sons and two daughters.

Glen Perrins
Ogden, Utah

Jesse Jabe Scott

Arthur Allen, Monroe, Louisiana, sends a notice of the death of J. J. Scott, breeder and shipper of bees, under the name of the Crowville Apiaries, Winnsboro, La. He was 58 and died of a heart attack. He is survived by his wife, one daughter, three sons, his mother, two brothers and two sisters.

Mrs. Ernest W. Fox

Word from Ernest Fox, Fruitdale,

Benson Appointed To Agricultural Advisory Committee

We have recently been informed that Clarence Benson, 5617 S. Montezuma Ave., Phoenix, Ariz., has been officially appointed to the Seed Research and Marketing Advisory Committee of the United States Department of Agriculture. This Committee meets once a year to discuss problems of agriculture and to make recommendations for appropriations for various projects, including research.

Mr. Benson is well qualified to present the beekeepers' problems to this Committee and as a result a closer tie with the Department of Agriculture should result, as well as a better understanding of our problems in relation to agriculture in general.

The Federation has been urging that a special Advisory Committee for Beekeeping be appointed, or that a beekeeper be appointed to this Seed Research and Marketing advisory Committee, or both.



Learn and Mix in '56

Connecticut Winter Meeting, New Haven, February 18

The winter meeting of the Connecticut Beekeepers Ass'n. will be held at the auditorium of the Connecticut Agricultural Experiment Station, Huntington St., New Haven, Conn. The day of the meeting is Feb. 18, 1956, the 3rd Saturday of the month starting at 10 A. M.

The speaker for the day will be one of the members of the staff at the Experiment Station, who will talk on insects and entomology in general. Lunch will be potluck, each person bringing a covered dish. Coffee will be furnished.

The Connecticut Agricultural Experiment Station, host, and the Connecticut Beekeepers Ass'n. extend a warm welcome to all beekeepers and others who would like to come. Come and receive new information and meet friendly people.

Philemon J. Hewitt Jr.
Chairman of Publicity.

Middlesex County (Mass.), Waltham, February 25

The February meeting of the Middlesex County Beekeepers' Association (Mass.) is to be held on Saturday, February 25, 1956, at the Waltham Field Station, Trapelo Road, Waltham. There will be a potluck supper at 6:30 P.M., followed by a brief business meeting.

The speaker of the evening will be Mr. Caswell, of Middleboro, Mass.
L. C. Proctor, Secretary.

Midwestern Association (Missouri), North Kansas City, February 12

The Midwestern Association will meet at the Veteran of Foreign Wars Hall, 1415 Swift St., North Kansas City, Feb. 12, 10 A.M., for an all-day meeting. There will be a basket dinner at noon. Everyone welcome. Bring your dinner and meet with us. This is a meeting of unusual interest, including the following:

Comparison of Locations for Bees in Missouri, Iowa, Nebraska, Minnesota, and South Dakota—Ed. Stewart, Fairfax, Mo.

Selecting Locations for Apiaries and Moving Bees—Ben Hughes, St. Joseph, Mo.

Processing and Packing Honey—Carlton Wright, Edgerton, Mo.

Queen Rearing—Guy Diemer, Liberty, Mo.

Marketing Honey—Carl Kalthoff, Lexington, Mo.

Suggestions to Improve Beekeeping—M. E. Triplett, Triplett, Mo.

A. W. Magers, Pres.

Mrs. William Brite, Sec.

Westchester County (New York), New Rochelle, February 19

The Westchester County Association will hold its next meeting at the Odd Fellows' Hall, 20 Lockwood Ave., New Rochelle, Sunday, Feb. 19, at 2:30 P.M. Problems will be discussed and experts will be on hand to answer any questions. Refreshments will be served by the Queen Bees.

Mrs. Alfred Roth, Publicity
Port Chester.

Virginia Association and Piedmont Association, Lynchburg, February 17-18

The Virginia State Association and the Piedmont Association will hold their combined winter meeting in Lynchburg, Feb. 17-18. The Piedmont group will have their meeting the evening of the 17th and the state group on Feb. 18. You are invited to come to both meetings. We expect to have some out-of-state speakers as well as local speakers. Meetings will be in the director's room of the Quality Dairy.

Henry W. Weatherford,
Sec.-Treas.

Cook-DuPage, February 18, Chicago

The Cook DuPage Beekeepers Association will hold its 35th annual meeting and banquet Saturday afternoon and evening Feb. 18 at the Victor Lawson Y.M.C.A., State St. and Chicago Ave. Meeting starts at 2:30 P.M. A banquet dinner at 6:30 P.M. followed by John Sautzuk our bee-

keeping magician who will perform some very mysterious magic.

We will have some very fine speakers, Prof. V. G. Milum of University of Illinois, Newman Lyle of Iowa, George Iftner, Assistant Director of Agriculture, Springfield, Ill.; W. F. Straub, Chicago, Ill.; Carl E. Killion, State Inspector and John Nash Ott of TV "How does your garden grow" who will show us movies of bees and flowers. Music and entertainment.

For reservations contact A. J. Smith, Worth, Ill.

EAS (Eastern Apicultural Society) University of Rhode Island,

July 13-15

A meeting of the Eastern Apicultural Society was held at the McAlpin Hotel, New York City, November 12. Approximately 40 delegates representing the Eastern Seaboard states were present. The purpose of the meeting was to formulate plans for the annual conference to be held at the University of Rhode Island, July 13-15, 1956. Delegates voted to fill the vacancy of 1st vice-president created by the resignation of Mr. Henry F. Poole, president, Massachusetts Beekeeping Federation, who has moved to California. Mr. Roy Stadel, Connecticut, 2nd vice president was elected to fill the vacancy and Mr. A. R. Dean, secretary, Pennsylvania Beekeepers Association, was elected 2nd vice-president. Officers elected to the Executive Board were James I. Hambleton, Chief, Insect Control and Pathology Section, USDA Station, Beltsville, Maryland; Mr. George Abrams, Apiculturist, University of Maryland; and Professor E. Anderson, Apiculturist, State College, Pa.

William K. Davis,
Publicity.

Southern Federation, Chattanooga, October 10-12

It's a long way ahead. But not too early to plan to come to Chattanooga for the Convention of the Southern States Beekeepers' Federation next Oct. 10-12 at the Hotel Patton. The

Tennessee Beekeepers' Association and the Chattanooga area beekeepers are co-hosts. We need young beekeepers over 40 to attend and instruct young beekeepers under 40. A good program is planned for all. A tour of interesting and historical sights about Chattanooga is lined up and a fishing trip to nearby Lake Chickamauga for nimrods who have the fever. All free if they notify the Sec.-Treas. in advance.

Carl M. Teasley, Apison, Tenn.
Sec.-Treas.

Illinois Short Course
February 1-2

This is a late note; our fault as we failed to get it in January. The Illinois Short Course (during Farm and Home Week) will be on Feb. 1st and 2nd. Faculty: Dr. V. G. Milum; Walter Barth of Gleanings; Inspector Carl Killion; H. E. Dale; G. H. Cale of American Bee Journal; Hoyt Taylor. Place: 102-C Vivarium Building.

Eastern Missouri
Clayton, February 7

The first meeting of the Eastern Missouri Beekeepers Association for 1956 will be held at the St. Louis County Court House, Clayton, Missouri on February 7 at 7:30 P.M. Visiting beekeepers are cordially invited to attend.

Officers for the new year are: President—Louis Lueddecke
Vice President—Ross Clenin
Secretary-Treasurer—Ray Reinhold

Smell

(From Page 65)

The results establish that the honey bee's sense of smell is markedly superior to that of man, and there is, in addition, a possibility that bees are especially sensitive in their response to the scented compounds which make up their own body odors. Whether this is so or not, they can certainly recognize these odors, even in a fantastically small concentration. Their now demonstrated ability to distinguish between slightly different mixtures of scented compounds fits with their ability to distinguish between the body odour of their companions and that of bees from other colonies. The honey bees' sense of smell clearly plays a very important role in their activities.

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Wilbanks offers you tested stock proven for honey producing ability and easy handling. Satisfied customers through the years assure you of the greatest value here.

PRICES

	1-9	10-49	50 up
2 lb. pkg. with young laying queen	\$4.00	\$3.75	\$3.50
3 lb. pkg. with young laying queen	5.00	4.75	4.50
4 lb. pkg. with young laying queen	6.00	5.75	5.50
Extra Queens	1.25	1.15	1.10

Shipments by Express, Parcel Post or your Truck.
Queen Yards and Package Bees fed Fumidil-B.

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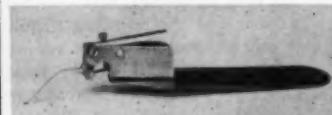
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Three - banded Italian bees and KELLEY'S ISLAND improved hybrid queens direct from our own Bee farm. Shipments start April 1st — express or parcel post shipment. Thousands of extra queens.

	Queens	2-lb. W.Q.	3-lb. W.Q.
1-24	\$1.25	\$3.50	\$4.50
25-99	1.15	3.25	4.25
100 and up	1.05	3.00	4.00

WALTER T. KELLEY CO., Clarkson, Kentucky

THE MASTER



Use the MASTER QUEEN GRAFTING TOOL for fast, easy and accurate transferring.

Your dealer stocks them.
\$3.60 (including extra rustless tongue).

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CAUCASIAN OR ITALIAN PACKAGE BEES AND QUEENS
FOR 1956

Gentle bees, less swarming, good producers, health certificate and live arrival guaranteed — just a few things you get when your requirements are sent to me.

No extra charges on orders booked in advance.

	1-25	25-50	50-100
2 lb. pkg. w/q	\$3.70	\$3.45	\$3.20
3 lb. pkg. w/q	4.00	4.30	4.00
4 lb. pkg. w/q	5.50	5.15	4.80
5 lb. pkg. w/q	6.40	6.00	5.60
Queens	1.20	1.10	1.00

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Want More Honey? — Use Starlines.

HOLLOPETER'S Italian Queens
Young laying Queens, return mail,
\$1.00 each

WHITE PINE BEE FARMS
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LINE HYBRIDS and
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Preferred by beekeepers
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Yellow Italian Bees and Queens

Prices: 2 lb. package with young queen \$3.00 each; 3 lb. pkg. \$4.00 each. Queens: 1-50 \$1.00 each; 51 to 99 95c each; 100 and up 90c each, air mail. We guarantee health certificate, and live arrival with each shipment.

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Gray Caucasians
Quality Bees and Dependable Service.
Mail service is being discontinued
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WANT MORE HONEY?

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Editorial . . .

To Henry and Mrs. Schaefer

Three years ago, at San Jose, California, Henry Schaefer was elected President of The American Beekeeping Federation. He accepted this important position and he put on the cloak of responsibility that went with the office. He did this with humility; he offered a prayer before his first business meeting; and he said he could not do the job alone but would need the help of everyone. He was ambitious for the Federation and for the beekeeping industry yet he was practical; he was industrious, persevering and thorough.

One might say that the Federation at that time was in a precarious position. Previously organized to include all phases of the bee and honey industry, dissension had arisen between these groups, between individuals, and financial support was lacking therefore. Thus, at San Jose, a new constitution was adopted which returned the Federation to an organization of beekeepers; the National Honey Packers and Dealers Association was organized; and plans were readied for the formation of an overall group to be later known as The Honey Industry Council of America. At the same meeting the controversial Honey House Sanitation Schedule was adopted and the Secretary resigned, but was re-employed until March 31, 1953.

During his first year as President of the Federation, Henry Schaefer, with the help of others, restored harmony; improved the working organization; put the Federation on a sound business and financial basis; incorporated the Federation; sponsored the first National Honey Show in cooperation with Minnesota; laid groundwork for an expanded research program; stepped up its honey promotion work; and many, many other things of benefit to beekeepers everywhere.

Re-elected President at The Baltimore convention, the good work continued and more progress was made toward establishing increased research, but the job was not complete by the time the Federation met in its annual meeting in Chicago in

Henry
Schaefer



January, 1955. So, in recognition of his leadership and continued work for the good of all beekeepers, Henry Schaefer became the only man in the history of the Federation to be elected to a third term as its President.

During 1954, Clarence Benson had been appointed to head a new committee working for an over-all research program. Schaefer and others worked hard in support of this and many trips were made to Washington. The result has been that \$100,000 was appropriated for additional research—\$50,000 for pollination research; \$25,000 for research on beekeeping's mechanical phases; and \$25,000 for research on honey.

Among the many things accomplished by the Federation during 1955 was the sponsoring of a honey display picture contest; the undertaking of a new and special program for hobbyist beekeepers; carrying on a better honey promotion campaign, again under the leadership of San Joaquin Watkins; and solidly backing the Check-off Plan adopted by the Honey Industry Council of America.

And during these three years of effective and unselfish devotion and hard work for beekeepers on the part of Henry Schaefer, Mrs. Schaefer served as Vice-president of the Ladies Auxiliary and, during 1955, as President of that organization. Mrs. Schaefer is to be congratulated for this but she also is to be thanked for permitting her husband to take so much time away from home and his own responsibilities. She, too, sacrificed much for the good cause.

In behalf of the industry, The American Bee Journal congratulates both Henry and Mrs. Schaefer and to both of them expresses sincere appreciation for an outstanding job well done. Thanks a million to both of you!

The Market Place . . .

BEES AND QUEENS

MOUNTAIN GRAY CAUCASIAN queens—\$1.25. After June 1st, \$1.00. Elbert S. Childs, 3221 Garden Dr., Knoxville 18, Tenn.

PACKAGE BEES—Take a vacation on your express money. Come for your bees; be our guest while here. 1800 hives to shake. Booking orders now. Miller Bros. Safford, Ala.

ITALIANS—Packages, Queens. Martz, Rt. A2, Box 846, Vacaville, Calif.

CARNIOLAN — CAUCASIAN—2-lb. package, \$3.50; 3-lb. package, \$4.50 each. Queens, \$1.00 each; \$85.00 per 100. Tillery Bros., Greenville, Ala.

GOOD PACKAGE BEES and QUEENS for 1956—Young three-banded Italians. Gentle and good honey gatherers. New caps, more than full weight of bees. Treated for the prevention of Nosema. No. 1 B., 1200 full colonies and 1500 nuclei to draw from. Years of experience shipping to many parts of the world. Shipping season opens about April 5. 2-lb. pkgs. with queens, \$4.00 each; 3-lb. pkgs. with queens, \$6.00 each. 5% discount on orders totaling \$100.00 or more; 10% discount on \$200.00 or more. Select young laying queens, \$1.35 each; 25 to 99, \$1.25 each; 100 or more, \$1.15 each. Small orders can be sent by parcel post. Large orders to best by express. H. C. Short. Fitzpatrick, Ala.

SEND OR BRING CAGES—Will supply bees for 75¢ lb. Will sell 100 to 200 ten-frame colonies on good tiki tupelo gallberry locations. A. V. Dowling, Valdosta, Ga.

CAUCASIAN QUEEN BREEDERS—"Hastings" Caucasians recognized in America and Europe as the finest breeding stock obtainable. No yellow. Tested and breeder queens only. Satisfaction guaranteed. Write for information and bookings. J. E. Hastings, Birch Hills, Sask., Canada.

ITALIAN and CARNIOLAN bees and queens. Luther Pickett, Elfland, N. C.

BRIGHT ITALIANS—3-lb. with queen, \$4.75; 2-lbs. with queen, \$4.00. F.O.B. Aberdeen, Queens, \$1.25 postpaid. Health certificate and live delivery guaranteed. Sheppard's Apiaries, Aberdeen, N. C.

FOR SALE

40 COLONIES—Write for details. Morehouse, Montevideo, Minn.

FOR SALE—8-frame Root equipment for 700 colony apiary. Write for details. E. H. Weddigh, Monte Vista, Colo.

6½ in. or 10½ in. foundation mill. Rollers are in good condition. Best offer takes one of the mills. L. C. Edwards, Piper City III.

I WILL SELL 200 hives or more of my bees that are now in black land area of Texas where vetch, Hubam clover and cotton are the chief producers. If desired, they can be left where they now are, which I think is one of the best areas for keeping bees without moving. More details by correspondence. Geo. M. Jeffus, Rt. 2, Crockett Texas.

FOR SALE CHEAP—Ten-frame hives, three-frame honey extractor and other equipment in good condition. No foulbrood. H. I. McMillian, 2110 Williams St., Burlington Iowa.

FOR SALE—400 colony beekeeping outfit. Will sell complete or any part. Good truck. Write for particulars. Wilson Mitchell, Boyne Falls, Michigan.

OPPORTUNITY TO BUY equipment for large apiary. No live bees. If you can haul. John L. Morris, 1312 Wilson Ave. Columbia, Mo.

BEES AND QUEENS

Copy for this department must reach us not later than the tenth of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

Rate of Classified advertising—16 cents for each word, letter, figure or initial, including the name and address. Minimum ad, ten words.

As a measure of precaution to our readers we require reference of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on comb must guarantee them free from disease or certificate of inspection from authorized inspector. The conditions should be stated to insure that buyer is fully informed.

HONEY and BEESWAX WANTED

WANTED—Any quantity amber honey Russell Griggs, Hancock, Iowa.

WANTED—Honey and beeswax. State what you have and price. Roscoe F. Wixson Dundee, N. Y.

WE ARE PAYING top prices on beeswax and honey shipped to one of our plants. Sioux Honey Assn., Lima, Ohio; Rogers Texas; Anaheim, Calif.; Tacoma, Wash.; and Sioux City, Iowa.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, Calif.

WANTED—Honey, amber or light, in any amount. Send sample for prices. Holland Honey Cake Co., Holland, Mich.

WANTED—Extra white and light amber honey. Let us ship you the containers. Sell us your honey for CASH on delivery. The Hubbard Apiaries, Manufacturers of Bee Supplies and Comb Foundation, Onsted Mich.

WRITE FOR SHIPPING TAGS and current quotations on rendered beeswax. Any amount from one pound up bought. If you have 25 pounds or more, save 25% by letting us work it into foundation for you. Walter T. Kelley Co., Clarkson, Ky.

HONEY FOR SALE

WHITE CLOVER HONEY in sixties. Ralph Gamber, 910 State, Lancaster, Pa.

100 LIGHT CLOVER honey, 60 lb. cans. K & T Apiaries, 710 Whitewood, Burlington, Iowa.

CLOVER HONEY in sixties. Thos. Atkinson, Rt. 5, So. Omaha, Nebr.

FOR SALE—White clover honey, any quantity. Mostly new 60's. Baxter's Honey Farm, Blair, Nebraska.

POSITIONS AND HELP WANTED

WANTED—A good reliable man for a few months, or a permanent position for the right man. Weaver Apiaries, Navasota Texas.

YOUNG MARRIED MAN. Season begins March 1st. House and garden furnished. Give qualifications and wages expected in first letter. Proper party will have opportunity to purchase my profitable modern 1000 colony honey and pollinating business. H. A. Schaefer, Osseo, Wis.

MADE \$135.00 AND UP every week. Full or part time. Take orders for America's largest selling, nationally advertised Liquid Fertilizer since 1946. No investment. Excellent opportunity for expansion. Write "Na-Churs" Plant, Food Co., 641 Monroe Street, Marion, Ohio.

HONEY LABELS

Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.

C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

WANTED—Reliable man for 1956 queen and package season. Howard Weaver Navasota, Texas.

HELP WANTED—One or two experienced beekeepers during the package shipping season, late March through April, 1956. You can have cash wages or package bees and/or queens, as you prefer. Write, giving your full experience, age and capability. H. C. Short, Fitzpatrick, Ala.

WANTED—Two experienced beekeepers, year round work or seasonal. Reference please. Jim's Valley Apiaries, Sunnyside Wash.

WANTED—An ambitious, physically fit good truck driving young man for migratory bee work. Year round job and some bees to run on shares. Give qualifications in first letter. Box 29, c/o American Bee Journal.

WANTED—An experienced man to operate established bee business on shares in one of the western states. Weaver Apiaries Navasota, Texas.

QUEEN BREEDER WANTED for 1956 season. Year round work if desired. Write Box CB, c/o American Bee Journal.

HELP WANTED—Year around job at excellent salary, for capable experienced man who can give satisfaction, in large bee business. Also need one inexperienced helper. Furnished rooms for married help. M. E. Ballard, Roxbury, N. Y.

WANTED—Help for the 1956 season in our yards and packing plant. Experience not essential. Excellent wages, bonus, other advantages. Schultz Honey Farms, Ripon Wisconsin.

WANTED—Experienced beekeeper. Can use college student thru three summer months, who would like to take over 1,000 colony outfit in N. Dak. later. No drinker. Write Gilbertson Apiaries, Kindred, N. Dak.

WANTED—Experienced man for honey production in Minnesota. Could start season in my Louisiana apiary. Lionel Hopkins, Maringouin, La.

WANTED

WANTED—Large outfit of bees, 200 to 2000 colonies, in the Midwest. Ten-frame standard, extra supers preferred. No honey house, truck or equipment necessary. Box 224, c/o American Bee Journal.

WANTED—300—500 standard hives. Write Box A. L., c/o American Bee Journal.

WANTED—To buy any bee outfit for sale in southeastern Montana or northeastern Wyoming. Address offers to American Bee Journal, Box J.

WILL PAY CASH or trade white honey for 200 or more 10-frame hive bodies with drawn comb. No junk. Gordon Still, Elm Creek, Nebr.

WILL BUY up to 500 colonies bees in 10-frame equipment or empty equipment. Must be located in Midwest. Box 63, c/o American Bee Journal.

UP to 60 colonies of bees and equipment for same. No disease or junk. Also large radial extractor. Warren Carlson, Winnebago, Illinois.

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THE BIGGEST BEE SUPPLY CATALOGUE PUBLISHED (64 pages) free for the asking. Big factory manufacturing a complete line of wooden goods, comb foundation metal goods, vells and gloves, carloads in stock, daily shipments, save 20%. WALTER T. KELLEY CO., CLARKSON, KY.

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2-lb. with queen \$3.00
3-lb. with queen 3.75
4-lb. with queen 4.50
Extra queens — \$1.00 each.

Book Early and Be Safe.

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3 lb. pkg. w/q. 4.35 4.25
Queens 1.25 1.15

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RANCH MAGAZINE—Do you find it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information of range sheep than any magazine published. Subscription \$1.00. Hotel Cactus, San Angelo, Texas.

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WANTED — Man with some experience in queen rearing. Permanent position. Hopkins Honey Farms, Maringouin, La.

Hybrid Cottonseed

(From Page 52)

as accurate information as possible, present that information to the cotton growers, and then let the growers arrive at their own decisions. However, everyone has heard what hybrid corn has done for the corn growers. Off the cuff, I seem to recall that, although the idea that hybrid corn might be grown commercially was first proposed about 1880, it was not taken up seriously until 1915 or 1918, and it then took the corn breeders about 20 years to get it all worked out for commercial production. The experiments reported here are the first attempt for cotton, and I believe that we have done well if we show that the method tried has some promise of success.

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	Italians	Starlines	2-lbs.	3-lbs.	4-lbs.
1-24	\$1.25	\$1.60	\$3.65	\$4.60	\$5.55
25-99	1.20	1.50	3.55	4.50	5.45
100-up	1.15	1.40	3.45	4.40	5.35

— Add 25c per package for Starline Hybrid Queens —

Queens Clipped and/or marked, when desired, without extra cost.

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2-lb. pkg. with queen	\$4.00	10-48	49-100
3-lb. pkg. with queen	5.00	4.75	4.50
Queens	1.35	1.25	1.15

Book Early and be assured of your favorite shipping dates.

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Navasota, Texas

ITALIAN BEES AND QUEENS

QUANTITY	1-24	25-99	100 up
2-lb. pkg. with queen	\$3.75	\$3.50	\$3.25
3-lb. pkg. with queen	4.75	4.50	4.25
4-lb. pkg. with queen	5.75	5.50	5.25
5-lb. pkg. with queen	6.75	6.50	6.25
Queens	1.25	1.15	1.00

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Write for details.

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Selected Italian Package Bees and Queens

Write for Prices

GENE W. STILES
501 W. 8th St. Davis, Calif.

Crops and Market

by M. G. Dadant

Condition of Bees

Bees throughout the country having gone into winter quarters with quite sufficient amounts of honey seem to be wintering very satisfactorily, except that there has been quite a prolonged winter in some of the northern areas, particularly Minnesota, with some question as to whether dysentery may not develop unless a warm spell comes in late January or early February.

There is also some question in the Southeast as to whether bees will have sufficient stores to build for packages and honey unless the nectar flow starts and unless moisture becomes more plentiful.

However, bees for date of January 10 are in quite satisfactory condition. This applies as well through the provinces of Canada. It is to be borne in mind that in the western provinces as well as some northern areas of the U. S. A., many bees are not wintered but started again with new packages in the spring.

Moisture

From northern Minnesota eastward through Wisconsin and northern Illinois, Indiana, Ohio, northern Pennsylvania, the New England states, the entire state of New York and New Jersey and parts of Maryland, the moisture has been sufficient, in fact, quite satisfactory.

Ranging from there southward, however, throughout the entire Southeast and the entire South into Texas, New Mexico, and Arizona, as well as in the North Central states and the Plains states, practically all reports are of dry conditions with much moisture needed, although snows have helped some in the more northern areas.

The eastern slope of the Rockies also seems quite deficient. However, western Montana extending into Idaho and down through the Rocky Mountains generally late snows have added considerably to the possibilities, although the valleys of Utah are still dry. Nevada seems to have plenty of moisture, as does Idaho and in the extreme West the moisture, as we have read in the newspapers, is extremely abundant to the point of many floods and destruction of bees, particularly

in northern California.

However, reports from southern California indicate that earlier prospects of moisture have not been borne out and dry conditions exist in the more southerly areas.

Crop Left On Hand

In practically all instances, the crop left on hand depends considerably on whether the beekeeper is holding for a better January or February price, or whether he is holding to fill the needs of his own customers. On the whole, the crop is quite as short on hand as a year ago and there seems no question there will be a quite general clean-up before the new crop is available.

Honey Prices in Bulk

Amber honey has not been in good supply owing to the short fall crop and as a result amber prices have held up quite satisfactory, there being no suggestions of prices under 12c a pound and most of them running from 12c to 13c per pound f.o.b. the producer's point, with some reporting amber moving as well as white and at similar prices.

On light honey we still hear of a few quotations in the 13c to 14c level, but most of them now are 14c to 16c per pound, with one or two lots moving as high as 18c per pound in 10 case lots.

On the whole, there probably has been no stiffening of prices from early December figures, but definite willingness to pay the price where the packager or commercial user is out of honey.

We learn of one Iowa lot moving for 16c, containers to be returned. On the other hand, we learn of offers by some packers being made in north central sections as low as 12c to 13c per pound f.o.b. Chicago and similar points.

On the whole, prices are being maintained much above the support level. October reports of honey exported amount to over five million pounds and an import of about half a million pounds. Later export figures are unavailable.

Summary

On the whole, bees are in good condition, the situation being generally dryer than would be most favorable, some possibilities of loss if continuous winter maintains during late January and February.

Honey crops moving satisfactory.



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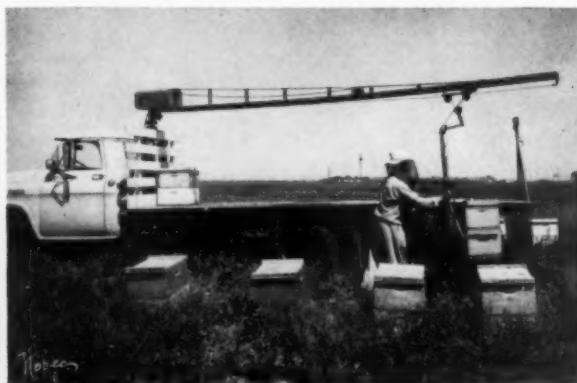
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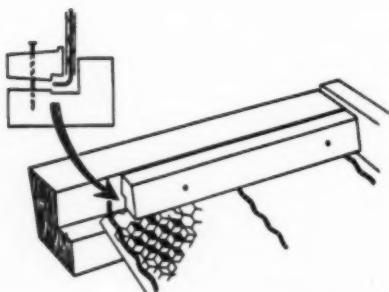
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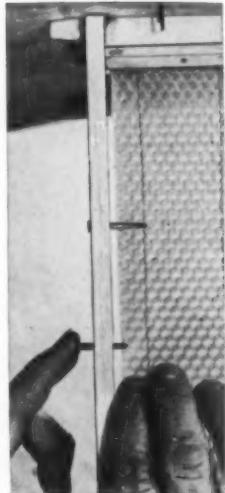
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